# PLC-5/VME VMEbus Programmable Controllers

(Cat. No. 1785-V30B, -V40B, -V40L, and -V80B)

## Introduction

Use these release notes with the following processors:

| Processor: | Series: | Revision: |
|---|---|---|
| PLC-5/V30™ | C | K |
| PLC-5/V40™ | | |
| PLC-5/V40L™ | D | B |
| PLC-5/V80™ | | |

These release notes supersede publication 1785-6.5.9-RN1, May 1995.


| For information about: | See page: |
|---|---|
| Using VME interrupts | 2 |
| Making VME self-references in post-tests | 3 |
| Avoiding multiple watchdog faults | 3 |
| Inserting ladder rungs at the 56K-word limit | 3 |
| Recovering from possible memory alteration | 4 |
| Examining fault codes | 4 |
| Avoiding run-time errors when executing FBC and DDT instructions | 4 |
| Processor specifications | 5 |


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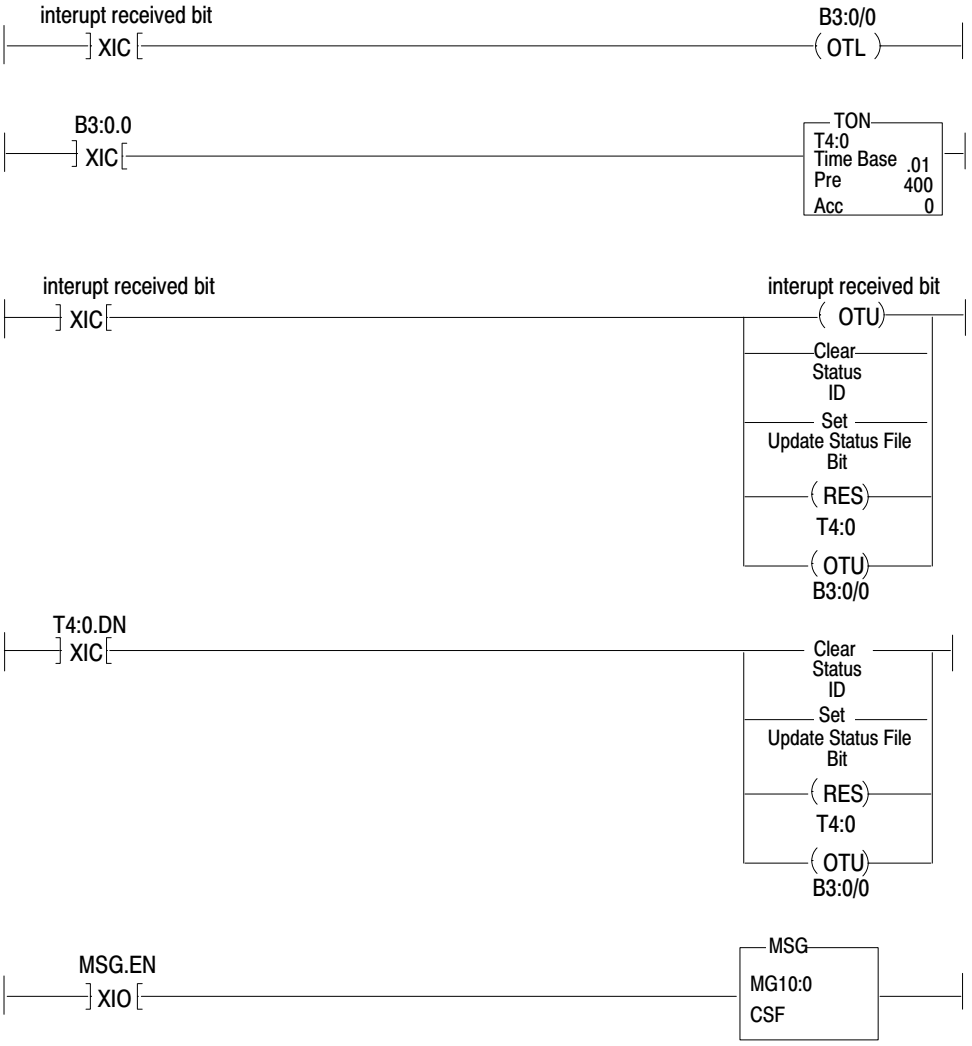
## Using VME Interrupts

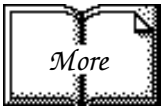
If you:

- set the NOCV bit to 1
  **AND**
- use the VME interrupt receive bits in the VME status file

then you should implement ladder logic similar to the following example to avoid missing interrupts:

You may need to tune the value of the TON timer for each unique application.




For a complete explanation of using VME interrupts, see page 4-5 of the PLC-5/VME Programmable Controllers User Manual, publication 1785-6.5.9.

## Making VME Self-references in POST Tests

SW2, position 7, now controls whether the PLC-5 processor makes a VME self-reference in its POST test. If you set SW2, position 7 to OFF (up position), then the PLC-5/VME processor will make self-references as it did prior to the series D/B and C/K releases. If you set SW2, position 7 to ON (down position), then the POST test will skip all VME self-references, causing the following effects:

- The PLC-5 processor cannot test its bus-master hardware.
- The PLC-5 processor cannot determine its own unique logical address and assumes that its ULA is F0H, regardless of how you set SW2, positions 1-3.
- The VME status file ULA field (word 1, bits 13-15) will always contain 000, regardless of how you set SW2, positions 1-3.

## Avoiding Multiple Watchdog Faults

If you encounter a hardware error or watchdog major fault, it may be because multiple watchdog faults occurred while the processor was busy servicing a ladder-related major fault. The hardware error occurs when the fault queue, which stores a maximum of six faults, becomes full and cannot store the next fault.

When you encounter a hardware error or multiple watchdog faults, take the following steps before calling a service representative:

| If you encounter a: | Then: |
|---|---|
| watchdog error and a fault bit | Extend the watchdog timer so that the real run-time error is not masked<br>Check your major fault bits; ignore the watchdog faults, and use any remaining fault bits to help indicate the source of the processor fault (for more information, see the Enhanced and Ethernet PLC-5 Programmable Controllers User Manual, publication 1785-6.5.12) |
| hardware error | **1.** Power down then power up the processor<br>**2.** Reload the program<br>**3.** Set the watchdog timer to a value = 10 × current setting<br>**4.** Run the program again |

If you continue to encounter the hardware error, call your Allen-Bradley representative.

## Inserting Ladder Rungs at the 56K-Word Limit

This consideration applies to PLC-5/V80 processors when you are editing a program file that approaches the maximum file limit of 57,344 words.

Performing run-time or program-mode editing of ladder files that approach the maximum program file size of 57,344 words could:

- prevent the rung from being inserted
- cause suspension of the operation by 6200 Series PLC-5 Programming Software (release 4.3 and later)

To avoid this problem, segment your program file by using modular programming design practices, such as main control programs (MCPs), sequential function charts (SFCs), and the jump to subroutine (JSR) instruction.

If you cannot segment your program file, save the file often while editing it. If you encounter the error “Memory Unavailable for Attempted Operation” while performing online edits, then use your programming software package to clear memory and restore the last-saved version of your program.

## Recovering from Possible Memory Alteration

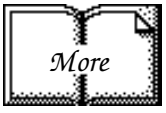
**ATTENTION:** Processor memory could become altered if you lose power while performing any of the following online editing operations:

- creating a rung
- assembling online edits
- creating and/or deleting data table space

If you lose power while editing your program, use your programming software package to clear potentially altered memory and restore the last-saved version of your program.

## Examining Fault Codes

Fault routines execute when a PLC-5 processor encounters a run-time error (major fault) during program execution.




For information about fault codes, see:

- PLC-5/VME VMEbus Programmable Controllers User Manual, publication 1785-6.5.9.
- Enhanced and Ethernet PLC-5 Programmable Controllers User Manual, publication 1785-6.5.12

## Avoiding Run-time Errors when Executing FBC and DDT Instructions

To avoid encountering a possible run-time error when executing FBC and DDT instructions, add a ladder rung that clears S:24 (indexed addressing offset) immediately before a FBC or DDT instruction.

| PLC-5/VME Processor Specifications | | PLC-5/V30™ (1785-V30B) | PLC-5/V40™ (1785-V40B) | PLC-5/V40L™ (1785-V40L) | PLC-5/V80™ (1785-V80B) |
|---|---|---|---|---|---|
| Maximum User Memory Words | | 32 K | 48 K ① | | 100 K ① |
| Maximum Total I/O | Any Mix | 896 | 1920 | | 2944 |
| | Complementary | 896 in and 896 out | 1920 in and 1920 out | | 2944 in and 2944 out |
| Maximum Analog I/O | | 896 | 1920 | | 2944 |
| Program Scan Time | | 0.5 ms per K word (bit logic)<br>2 ms per K word (typical) | | | |
| I/O Scan Time | | 0.5 ms (extended local)<br>10 ms per rack @ 57.6 kbps<br>7 ms per rack @ 115.2 kbps<br>3 ms per rack @ 230 kbps | | | |
| Remote I/O Transmission Rate | | 57.6 kbps<br>115.2 kbps<br>230 kbps | | | |
| Maximum Number of MCPs | | 16 | | | |
| Number of Data Highway Plus™ (DH+™) or Remote I/O Ports (Adapter or Scanner) | | 2 | 4 | 2 | 4 |
| Number of Extended-Local I/O Ports | | N/A | N/A | 1 | N/A |
| Maximum Number of I/O Racks | | 7 | 15 | | 23 |
| Maximum Number of I/O Chassis | Extended Local | N/A | N/A | 16 | N/A |
| | Remote | 28 | 60 | | 92 |
| Number of RS-232 Ports | | 1 | | | |
| Backplane Current Load | Maximum | 3.0 A | 3.3 A | 3.5 A | 3.3 A |
| | Typical | 2.4 A | 2.7 A | 2.9 A | 2.7 A |
| Weight | | 0.56 kg (1.25 lbs) | 0.67 kg (1.5 lbs) | | |

① The PLC-5/V40, -5/V40L, and -5/V80 processors have a limit of 32K words per data-table file.

## PLC-5/VME Battery Specifications (1770-WV/A)

| Battery used in this processor: | At this temperature: | Worst-case Battery Life Estimates<br>Power off 100%: | Power off 50%: | Battery Duration after the LED lights ① |
|---|---|---|---|---|
| PLC-5/V30, -5/V40, -5/V80 | 60°C | 180 days | 360 days | ~6 days @ 80µA |
| | 25°C | 290 days | 580 days | ~9 days @ 50µA |

① The battery indicator (BATT) warns you when the battery is low. These durations are based on the battery supplying the only power to the processor (power to the chassis is off) once the LED first lights.

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